

### In the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

1           1.   (Currently Amended) A method of time scale modification  
2 of a digital audio signal comprising the steps of:

3           reading digital audio data from a data storage media;

4           employing a digital signal processor to

5           ~~analyzing an input signal~~ analyze the digital audio data

6           in a set of first equally spaced, overlapping time windows  
7           having a first overlap amount  $S_s$ ;

8           ~~selecting~~ select a base overlap  $S_s$  for output synthesis  
9           corresponding to a desired time scale modification;

10          ~~calculating~~ calculate a cross-correlation  $R[k]$  for index  
11          value  $k$  between overlapping frames for a range of overlaps  
12          between  $S_s + k_{\min}$  to  $S_s + k_{\max}$  for only a fixed length overlap  
13          region less than an entire overlapping region;

14          ~~selecting~~ select a value  $K$  yielding the greatest  
15          cross-correlation value  $R[k]$ ;

16          ~~synthesizing~~ synthesize an output signal in a set of  
17          second equally spaced, overlapping time windows having a  
18          second overlap amount equal to  $S_s + K$ ; and

19          producing an output corresponding to the output signal  
20          synthesized by the digital signal processor having the desired time  
21          scale modification relative to the digital audio data read from the  
22          storage media.

1           2.   (Currently Amended) A method of time scale modification  
2 of a digital audio signal comprising the steps of:

3           reading digital audio data from a data storage media;

4           employing a digital signal processor to

~~analyzing an input signal~~ analyze the digital audio data  
in a set of first equally spaced, overlapping time windows  
having a first overlap amount  $S_s$ ;

~~selecting~~ select a base overlap  $S_s$  for output synthesis  
corresponding to a desired time scale modification;

~~calculating~~ calculate the cross-correlation  $R[k]$  for  
index value  $k$  between overlapping frames for a range of  
overlaps between  $S_s + k_{min}$  to  $S_s + k_{max}$  for only a fixed length  
overlap region less than an entire overlapping region  
employing the equation

$$R[k] = \sum_{initial\_x}^{final\_x} sign\{y[mS_s + i + k]\} \cdot sign\{x[mS_s + i]\}$$

where:  $x[i]$  is the analysis of the input signal for index  
value  $i$ ;  $y[i]$  is a synthesis signal for the index value  $i$ ;

~~selecting~~ select a value  $K$  yielding the greatest  
cross-correlation value  $R[k]$ ;

~~synthesizing~~ synthesize an output signal in a set of  
second equally spaced, overlapping time windows having a  
second overlap amount equal to  $S_s + K$ ; and

producing an output corresponding to the output signal  
synthesized by the digital signal processor having the desired time  
scale modification relative to the digital audio data read from the  
storage media.

3. (Original) The method of claim 1, wherein:  
said step of calculating the cross-correlation  $R[k]$  employs  
only a center half of the overlap region for  $k = 0$ .

4. (Previously Presented) A digital audio apparatus  
comprising:  
a source of a digital audio signal;

4 a digital signal processor connected to said source of a  
5 digital audio signal programmed to perform time scale modification  
6 on the digital audio signal by  
7 analyzing an input signal in a set of first equally  
8 spaced, overlapping time windows having a first overlap  
9 amount,  
10 selecting a base overlap  $S_s$  for output synthesis  
11 corresponding to a desired time scale modification,  
12 calculating a cross-correlation  $R[k]$  for index value  $k$   
13 between overlapping frames for a range of overlaps between  
14  $S_s + k_{\min}$  to  $S_s + k_{\max}$  for only a fixed length overlap region  
15 less than an entire overlapping region;  
16 selecting a value  $K$  yielding the greatest  
17 cross-correlation value  $R[k]$ ,  
18 synthesizing an output signal in a set of second equally  
19 spaced, overlapping time windows having a second overlap  
20 amount equal to  $S_s + K$ ; and  
21 an output device connected to the digital signal processor for  
22 outputting the time scale modified digital audio signal.

1 5. (Previously Presented) A digital audio apparatus  
2 comprising:  
3 a source of a digital audio signal;  
4 a digital signal processor connected to said source of a  
5 digital audio signal programmed to perform time scale modification  
6 on the digital audio signal by  
7 analyzing an input signal in a set of first equally  
8 spaced, overlapping time windows having a first overlap  
9 amount,  
10 selecting a base overlap  $S_s$  for output synthesis  
11 corresponding to a desired time scale modification,  
12 calculating a cross-correlation  $R[k]$  for index value  $k$   
13 between overlapping frames for a range of overlaps between

$S_s + k_{min}$  to  $S_s + k_{max}$  for only a fixed length overlap region less than an entire overlapping region employing the equation

$$R[k] = \sum_{i=initial\_x}^{final\_x} sign\{y[mS_s + i + k]\} . sign\{x[mS_s + i]\}$$

where:  $x[i]$  is the analysis of the input signal for index value  $i$ ;  $y[i]$  is a synthesis signal for the index value  $i$ , selecting a value  $K$  yielding the greatest cross-correlation value  $R[k]$ ,

synthesizing an output signal in a set of second equally spaced, overlapping time windows having a second overlap amount equal to  $S_s + K$ ; and

an output device connected to the digital signal processor for outputting the time scale modified digital audio signal.

6. (Original) The digital audio apparatus of claim 4, wherein:

said digital signal processor is programmed to calculate the cross-correlation  $R[k]$  employing only a center half of the overlap region for  $k = 0$ .